

Voges Bridge
Spanning the Yellowstone River
at Grey Bear Road
Big Timber Vicinity
Sweet Grass County
Montana

HAER No. MT-103

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Rocky Mountain System Support Office
National Park Service
P.O. Box 25287
Denver, Colorado 80225-0287

HISTORIC AMERICAN ENGINEERING RECORD
VOGES BRIDGE

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I. INTRODUCTION

Location: Spanning the Yellowstone River at Grey Bear Road
Big Timber vicinity
Sweet Grass County, Montana

Quad: Carney, Montana

UTM: 12/572660/5070920

Date of Construction: 1914

Present Owner: Board of County Commissioners
Sweet Grass County
200 West 1st Avenue
Big Timber, Montana

Present Use: Highway Bridge

Significance: The Voges Bridge over the Yellowstone River was one of the last pin-connected Pratt through truss structures constructed across a major watercourse in Montana. The bridge exhibits all the features traditionally associated with the bridge type, with one notable exception. The floor system was modified to accommodate the utilization of the bridge by modern mechanized farm equipment. The modified floor system was experimental and funded through a \$5,000 contribution from New York oil man and part-time Montana rancher, W. Dixon Ellis.

Historian: Jon Axline, Montana Department of Transportation
April, 1998

II. HISTORY

In July, 1806, the Lewis and Clark Expedition split into three groups to explore as much of the Missouri and Yellowstone river drainages as possible before returning to St. Louis. A 12-man company under the command of William Clark entered the Yellowstone Valley over Bozeman Pass on July 15, 1806. Clark's party passed through the Voges Bridge area on July 16, 1806. Clark reported that he passed "Stinking Cabin Creek" on the south side of the Yellowstone River. The mouth of the creek (now called Antelope Creek) is about 2,000 feet southwest of the Voges Bridge. Sergeant George Shannon killed a bison for food and for its hide, which he used to make moccasins for some of the group's foot-sore horses. Clark further related

Saw a large gangue [sic] of about 200 Elk and nearly as many Antelope [sic] also two white or Grey Bear [Grizzlies] in the plains, one of them I Chased on horse back about 2 miles to the rugged [sic] part of the plain where I was compelled to give up the Chase"

The party camped at the mouth of Little Timber Creek about 5½ miles northeast of the Voges Bridge.¹

The Yellowstone Valley in the area of the Voges Bridge was a major travel corridor after 1806. The valley was frequented by fur trappers and traders from the St. Louis-based fur companies beginning in 1807. By the 1840s, the valley was well-known to American and Canadian fur companies seeking beaver pelts or Native Americans willing to trade them. The closest trading posts, however, were located near the mouth of the Big Horn River, over one hundred miles to the east.²

The 1851 Fort Laramie Treaty established the project area as part of the Crow Indian Reservation. Despite restrictions placed on non-Indians by the treaty, the Yellowstone Valley in south central Montana continued to be the focus of considerable attention. Directed to explore the Yellowstone River by the War Department, Captain William Reynolds and Henry Maynadier reached the vicinity of the Voges Bridge in June, 1860. The discovery of gold on Grasshopper Creek in southwestern Montana initiated a new phase of development in Montana. By 1863, a prospecting expedition headed by James Stuart passed through the area. Although unsuccessful in discovering significant gold deposits, the expedition sparked renewed interest in the Yellowstone Valley as a major travel corridor.³

In 1864, John Bozeman and mountain man John Jacobs established a route between Fort Laramie and Virginia City. The Bozeman Trail was located about 250 yards south of the Voges Bridge. Because of Lakota and Northern Cheyenne opposition to the Bozeman Trail and, specifically, three military forts located along it in northern Wyoming and south central Montana, renowned mountain man and guide Jim Bridger established a second emigrant trail. The Bridger Cut-off was also located near the Voges Bridge on approximately the same alignment as the Bozeman Trail. Hundreds of gold seekers and businessmen utilized both the Bozeman and Bridger roads between 1864 and 1874, when the routes were supplanted by the shorter and safer Montana-Utah Road in southwestern Montana.⁴

Unfortunately for the Crow Indians, the establishment of the Bozeman and Bridger trails in the Yellowstone Valley in 1864 made the area increasingly more attractive to White ranchers and miners. In 1864 and 1866, Acting Territorial Governor Thomas Francis Meagher petitioned

the federal government to begin negotiations with the Crows to reduce the size of their reservation. Finally, in 1868, the U.S. government met with representatives of the Crow tribe to discuss the issue. The Fort Laramie Treaty of 1868 removed Crow territory north of the Yellowstone River from the reservation. A second treaty in 1883 caused the Crows to cede their land west of the Boulder River and south of the Yellowstone River (this included the Voges Bridge area). The reservation, which had consisted of eight million acres in 1865 had been reduced to three million acres by 1883. Most of the push for removal of the territory in 1882 came from miners interested in gold and silver lodes on the upper Yellowstone River and in the Beartooth Mountains near Cooke City. Although ranchers had been grazing cattle on the Crow Reservation since 1866, the removal of the territory in what would become Sweet Grass and Park counties legitimized their claim to the land. Finally, the 1883 land deal with the tribe also removed the last obstacle to the construction of the Northern Pacific Railroad through the valley.⁵

Northern Pacific Railroad crews began surveying the Yellowstone Valley as a possible route for the second transcontinental railroad in 1871. In September, 1871, a party of surveyors escorted by Captain Edward Ball of Fort Ellis near Bozeman, passed just south of the Voges Bridge. The following year, in July, 1872, another Northern Pacific surveying crew and military escort under the command of Major Eugene Baker of Fort Ellis traveled down the north side of the Yellowstone River near the future site of the bridge. In early April, 1876, six companies of infantry and four companies of the Second U.S. Cavalry under the command of General John Gibbon from Fort Shaw, passed through the area to rendezvous with General Alfred Terry and Lieutenant George Armstrong Custer's Seventh Cavalry near the mouth of the Little Big Horn River. The defeat of Custer's command on June 25, 1876, led to the construction of a military post at the confluence of the Tongue and Yellowstone rivers. A route between Fort Ellis in the Gallatin Valley and the new post, Fort Keogh at the mouth of the Tongue River, led to the establishment of the Tongue River Road on the north side of the Yellowstone River on the approximate alignment of the existing county road in the vicinity of Voges Bridge. The federal government designated the road a mail route in 1877; stage stations were soon constructed by private entrepreneurs along its length. The community of Big Timber originated as a stage station in 1880. Travel on the road, however, significantly declined after the completion of Northern Pacific Railroad through the area in 1882.⁶

The broad Yellowstone River valley and the bench lands north of the river provided ideal forage for cattle and sheep. Bozeman entrepreneur Nelson Story drove the first cattle herd up the Bozeman Trail through the Yellowstone Valley in the vicinity of the Voges Bridge in November, 1866. It was not until 1873 that the cattle industry, in what would be known as Sweet Grass County, was established by Al and Waborn Harrison. By late 1879, four men, including Charles McDonnell and Ed Veasy or Vessey, drove a band of 3,000 sheep into the valley near Big Timber Creek from California. Though the rangeland north of the Yellowstone had been removed from the Crow Reservation in 1868, the area south of the river was part of the reservation until 1882. Although a few illegally grazed their cattle on the reservation in the 1870s, for the most part, the livestock industry was confined to the bench lands north of the river.⁷

The stock industry grew rapidly in the region. Part of this was because of the relatively good location enjoyed by the cattle and sheep men in the valley, which was

Blessed with a most generous supply of water, a very essential commodity for growing

forage crops and for the winter feeding of stock, and sheltered by mountain peaks from the cold winds and severe storms, Sweet Grass is indeed a paradise for stockmen.

With the removal of the territory south of the Yellowstone River from the Crow Reservation in 1882 and the arrival of the Northern Pacific Railroad that same year, the stock industry in the region boomed. The boom was concurrent with a statewide increase in sheep and cattle production that began in 1881. Along with the railroad came other settlers in the valley who took up 160 acre homesteads in the valley bordering the river. Eventually the number of sheep in the area surpassed the number of cattle. In 1887, 250,000 sheep in Sweet Grass County produced over 1.6 million pounds of wool. By 1900, the county boasted of 402 farms and ranches within its jurisdiction embracing 330,000 acres. By 1907, the average stock ranch in Sweet Grass County ranged between 2,500 to 3,000 acres. In 1910, county ranchers shipped out 5,000 cattle and 200,000 sheep on the Northern Pacific Railroad. The area north of the Voges Bridge was utilized for both cattle and sheep.⁸

The arrival of the railroad in 1882 significantly accelerated the settlement of the valley and brought the first homesteaders to the valley. They purchased land from the Northern Pacific Railroad's Northwestern Improvement Company (the project area was included within the railroad's 1864 land grant) or acquired it through the 1877 Desert Land Act. Because of the proximity to the river, many of the homesteaders excavated extensive irrigation systems to carry water to their 160 and 640 acre parcels. The population of this portion increased sufficiently to warrant the creation of a new county in 1895. Sweetgrass County was created from portions of Meagher, Yellowstone and Park counties; Big Timber was designated the county seat in 1896.⁹

Agricultural production in the vicinity of the project area intensified as a result of the 1909 Enlarged Homestead Act. Most of the settlement, however, occurred in the northern section of the county where the homesteaders relied on dry land farming. According to Brownell (1989), the number of farms near the project area increased only 54% from 473 to 863 units in the 1910s. North of the Voges Bridge, the 640 acre farms were mostly utilized by sheep ranchers, while the area south the Yellowstone River was cultivated. Within the project area, settlement occurred primarily in 1909 with the 160 acre homesteads heavily reliant on water obtained from the Hunters Hot Springs Canal. The ditch company was incorporated in October, 1907 to supply stockholders and other consumers with water from the Yellowstone River. Serious campaigning for the construction of a bridge over the Yellowstone River just north of the Northern Pacific siding at Camey began in 1911.¹⁰

People living on the north side of the Yellowstone River west of Big Timber had been agitating for the construction of bridge for several years. The *Big Timber Pioneer* reported in October, 1913 that "during the past two or three years the population on that side of the river has increased to 50 homesteaders . . . and the only outlet they have is across the Park County bridge at Springdale." W. Dixon Ellis, a New York oilman and part-time Montana rancher announced just prior to the October meeting of the Sweet Grass Board of County Commissioners that he was willing to donate \$5,000 toward the construction of a bridge near his property north of the Yellowstone River, if it was constructed in 1914. Dixon submitted a petition, signed by "numerous tax payers," to the Sweet Grass Board of County Commissioners on November 23, 1913 along with his \$5,000 donation.¹¹

Ellis's donation provided the impetus for the construction of a bridge southwest of Big Timber. Although Ellis claimed Big Timber as his home, his ranch, the Briggs-Ellis Cattle Company,

consisted of properties on the north and south sides of the Yellowstone River between Big Timber and Duck Creek (thirteen miles west of the community). A bridge west of Big Timber would provide direct access between his ranch properties on both sides of the river. It would also allow better access to the Northern Pacific Railroad station at Carney rather than the necessary fifteen mile detour required to cross the Springdale Bridge. For reasons unknown, however, the commissioners accepted the money, but postponed any discussion of the matter.¹²

In March, 1914, the landowners north of the Yellowstone River resubmitted a "monster" petition to the Sweetgrass County Commissioners. In addition to the local landowners and businessmen of Big Timber, the petition included signatures from all over the county, including Meville, Grey Cliff (at which point a bridge was constructed in 1911) and from Reed Point (which had become part of neighboring Stillwater County in 1913). The petition, signed by over 200 citizens, also included representatives from the local Good Roads organization and Mayor J. R. Kaiserman of Big Timber.

[I]n fact every portion of the county readily signed in its favor, and the list included the heaviest taxpayers on the county. When the matter was before the board, leading business men of [Big Timber], those who contribute liberally toward the support of the county, were on hand to advocate [the bridge].

This time, public sentiment was too strong to ignore for the county commissioners and they unanimously agreed to build a bridge four miles southwest of Big Timber "at a time when part of its cost will be received from contributions." The County Commissioners, consequently, spent part of the meeting visiting the proposed bridge site and subsequently ordered county surveyor B.J. Kleinhesselink to estimate the cost for the right-of-way and prepare plans and specifications for the bridge.¹³

The County Commissioners advertised for bids to construct a bridge for an estimated \$17,000 on March 26, 1914. Sweetgrass County surveyor Kleinhesselink and County Assessor and civil engineer D. J. Walvoord developed plans for the construction of a 378-foot steel through truss bridge with a timber floor system. On April 7, 1914, the commissioners received bids from nine bridge construction companies for the structure. The highest bid submitted was \$17,500 from the Montana Bridge and Structural Company, while the Billings, Montana-based Security Bridge Company made the low bid for \$14,995. The commissioners awarded the contract to the Security Bridge Company and made arrangements with County Treasurer Ralph S. Jarrett, who was also the trustee for the Briggs-Ellis Company to disburse funds to the bridge company for the structure.¹⁴

The contract stipulated that the Security company would be paid in three installments with the first installment of \$5,500 due upon the delivery of the steel components at the railroad siding approximately 250 yards south of the construction site. The remaining payments were due upon completion of the reinforced concrete substructure and the superstructure. The commissioners set the completion date for the bridge by November 15, 1914. The county paid local sheep rancher Charles Voges \$200.00 for the right-of-way at the north approach of the bridge. Local rancher Andrew M. Clark and Jarrett were contracted by the county commissioners to construct the approach roads to the bridge. The cost of the road was donated by ranchers on the north side of the river and by Big Timber business men.¹⁵

The Security Bridge Company construction crew, led by a man named Baksted, arrived at the construction site the second week of April, 1914 to begin clearing it of vegetation. The *Big Timber Pioneer* reported that the bridge would be somewhat different from other large structures that crossed the Yellowstone River in the vicinity of the community because

The feature of the bridge will be its capacity. Heretofore, but little attention has been paid in plans and specifications to the importance of suitable capacity for tractor engines, now a common thing on all roadways. The plans on file with the county surveyor call for a bridge to hold a twenty ton engine, assumed to occupy a width of twelve feet.

Most steel truss bridges in Montana were not designed for a 20-ton load limit before 1915. W. Dixon Ellis evidently donated the \$5,000 to test a new flooring system on the bridge to make it more readily accessible for mechanized farm equipment. The construction crew established a camp on the south side of the river consisting of five tents and a frame boarding house.¹⁶

Work progressed rapidly on the bridge because of a relatively small run-off on the Yellowstone River. By late May, 1914, work had nearly been completed on two of the reinforced concrete river piers. Foreman James and a fifteen man work crew had also completed a portion of the timber falsework for the steel trusses. The falsework was constructed in lieu of the failure of the Trident Cement Company in Gallatin County to deliver the requisite cement. By May 21st, most of the steel for the structure, which was fabricated in Illinois and Lackawanna, New York, was deposited along the Northern Pacific Railroad tracks south of the construction site.¹⁷

There is no record in the Sweet Grass County Commissioners' Minute Books of when the Voges Bridge was completed by the Security Bridge Company. The County obtained permits from the Northern Pacific Railway Company to establish a public road across the railroad's right-of-way in June, 1914. The County Commissioners Minute Books indicate that a \$5,500 payment was made to the Security Bridge Company on June 1, 1914. The minute book, however, also shows that a \$995 payment was made to the company by the county for the bridge on March 3, 1915. This may indicate that the company may have completed the primary work on the bridge by June 1, 1915, but was unable to finalize the project until March, 1915. In any case, there is no mention of the completion of the bridge in the *Big Timber Pioneer*.¹⁸

With the completion of the Voges Bridge in mid-1914, the ranchers and homesteaders on the north side of the Yellowstone River obtained access to the Northern Pacific Railroad's main line station at Camey. By 1920, the population in the vicinity of the bridge had warranted the formation of a new school district and the construction of a one-room schoolhouse about a hundred yards north of the Voges Bridge. The bridge still functions in the capacity for which it was intended - allowing access to the railroad and, now, Interstate 90.

III. THE BRIDGE

A. DESCRIPTION

The Voges Bridge is a two-span pin-connected camclback-type Pratt through truss structure with two untreated timber approach spans. The structure rests on three reinforced concrete piers with steel foundations. The bridge consists of two 170-foot long steel truss spans and a 17'3" long untreated timber approach span on the south (Approach Span No. 1) and a 15'9"

untreated timber approach span on the north (Approach Span No. 2). The structure is supported on the ends by two reinforced concrete abutments. The bridge is 376-feet long with a deck width of 15'8" and an out-to-out width of 16'5". The steel truss spans provide a vertical clearance of 15'8" from low steel to maximum high water. The bridge has a 11'2" vertical clearance on the deck.

Substructure

The original plans for the Voges Bridge have not survived. While detailed measurements for the superstructure is available as a result of the seven bridge inspections conducted by the Montana Department of Transportation since 1979, there are no measurements extant for the bridge's substructure. There are three piers numbered consecutively from south to north.

Pier No. 1 consists of two reinforced concrete columns connected with a reinforced concrete diaphragm. The concrete on this pier is extremely deteriorated with severe cracking and spalling that has exposed the reinforcing steel.

Pier No. 2 consists of a solid reinforced concrete pier with two columnar extensions upon which the rocker bearings rest. The pier is flared at the base and rests on a rectangular concrete base. This pier was significantly reconstructed in the early 1980s into its present configuration. There are steel bands bolted and strapped to the upstream "nose" of the pier; similarly, steel straps have been bolted to the upstream side of the pier's foundation.

Pier No. 3 also consists of two reinforced concrete columns connected by a concrete diaphragm.

The structure rests on solid reinforced concrete abutments at either end.

Superstructure

The Voges Bridge is a steel pin-connected camelback Pratt through truss. It consists of two main spans of eight panels each and two treated timber approach spans. The bridge is 376-feet long and 16-feet wide. The superstructure of the steel spans of the bridge is comprised as follows: the lower chord for panels 1, 2, 7 and 8 are two laced channels; the lower chord for the other panels are eyebars. Each panel is 21'3" wide and vary between 20'8" and 26'8" deep. The hip verticals are four laced angle sections and the other verticals are two laced channels. The diagonals are eyebars with turnbuckles. The upper chord is a continuous steel plate riveted atop two channel sections with lacing bars riveted to the their lower flanges. Nine lines of 4" x 16" untreated wood stringers rest on the top flange of the 5 1/4" x 15" steel I-beam floor beams, which are riveted to the superstructure; there are seven I-beams to each truss. The stringers are 1'9" apart. The portal bracing consists of channel sections, while the top lateral bracing consists of crossed eyebars. The sway braces consist of eyebars with turnbuckles. There are five top struts on each span consisting of laced channel sections, riveted to the top chords. The bridge currently has a wood deck consisting of 3" x 12" planks with steel running planks. The deck is flanked by two two-rail wood guardrails with the 2 x 4 wood posts bolted to the outside stringers of the structure. The bottom lateral bracing on the structure consists of eyebars.

The approach spans are untreated timber structures. Approach Span No. 1 (south) is 17'3" long and 16'5" wide. It consists of ten lines of 16" x 4 1/2" untreated timber stringers with the south end resting on a 14 1/2" x 26" reinforced concrete backwall and the north end resting on Pier No. 1. The deck is composed of 3" x 12" untreated timber planks and the deck is flanked

by the same type of guardrail as found on the steel truss spans. Approach Span No. 2 (north) is 15'9" long and 16'5" wide. The north end of this span rests on the north 14½" x 26" reinforced concrete backwall, while the south end rests on Pier No. 3. Like Approach Span No. 1, the deck is supported by ten lines of 16" x 4½"± untreated timber stringers and the deck is composed of 3" x 12" untreated timber planks with the same type of guardrails as attached to the steel truss spans.

Material

No figures are available for the amount of concrete or steel used for the construction of the bridge.

Pratt Trusses

The modern steel truss bridge was primarily the creation of American inventors. While European bridge-builders concentrated on masonry arch spans during the first six decades of the 19th century, the demands of the expanding railroad networks in the United States forced American engineers to experiment with a variety of different truss types. In 1859, engineers developed pin-connections for truss bridges. Pin-connections simplified the construction process and permitted prefabrication of bridge components. The rapid expansion of the railroad system and the rise of the bridge companies depended directly on this development. American bridge engineers quickly embraced the new technology and pin-connections became standard to truss bridges throughout the country for the next half-century. After 1883, the railroads aided in the dissemination of truss bridge in Montana since they could easily transport the components to the vicinity of the construction site.¹⁹

Thomas and Caleb Pratt developed a truss in 1842 and patented the design in 1844. One of the first scientifically designed trusses, the Pratt truss was somewhat similar in appearance to the Howe truss. That was, however, the only similarity between the two types. Instead, the Pratt truss used vertical compression members of wood and the iron diagonals as tension members. As a result, the shorter compression members reduced the chance that the structure would buckle at a critical moment. By 1850, the Pratt truss was composed of wood or metal or a combination of both components.²⁰

The Pratt truss was not originally preferred by the railroads because it required more iron for the diagonals and was, consequently, more expensive to build. Although initially more costly than the Howe truss, the Pratt required less maintenance, was more durable and less prone to failure. By 1890, engineers had modified the truss until it was the standard all-steel truss bridge on both the railroads and highways. The majority of steel highway bridges constructed in Montana during the first twenty-five years of the 20th century were simple Pratt trusses.²¹

The Thirteenth Montana legislature created the Montana Highway Commission in 1913. At first, the Commission merely worked to establish the Federal Aid Primary highway system as stipulated by the Federal Aid Road Act of 1914. By 1915, however, the Commission had created a Bridge Department to develop standardized bridge designs and oversee the construction of bridges in the state. The Commission also standardized the bidding process to make it consistent statewide and strove to place stricter controls on the private bridge construction companies then operating in the state. The counties, however, were not required to seek the services of the Commission's bridge department and there is no evidence that the Sweet Grass County commissioners sought the advice and counsel of the Montana Highway Commission for this particular bridge. By 1914, the Commission had developed a standard riveted Warren truss design for all through trusses constructed in the state. Thereafter, the

number of new Pratt trusses built in Montana dwindled until 1931, when the Commission abandoned the design in favor of the Warren truss.²²

B. MODIFICATIONS

Other than replacement of the timber deck, guardrails and stringers, there have been no modifications to the superstructure since its construction in 1914. The center pier (No. 2) was reconstructed sometime in the mid-1980s.

C. OWNERSHIP AND FUTURE

The Voges Bridge is currently owned and maintained by Sweet Grass County. The Montana Department of Transportation programmed this off-system bridge for replacement in 1994 and a Memorandum of Agreement (MOA) was signed in July, 1997. The Voges Bridge was offered for adoption in January, 1998. No one agreed to accept responsibility for the bridge under the terms of the department's Adopt-A-Bridge program. Consequently, the Voges Bridge will be demolished in 1999.

IV. BIOGRAPHICAL MATERIAL

The Security Bridge Company

Founded by William S. Hewett and Arthur L. Hewett in 1905, the Security Bridge Company was one of over thirty bridge construction firms active in Montana during the first three decades of the twentieth century. Both William and Arthur Hewett learned the bridge business from their Great-uncle, Seth Hewett, in Minneapolis beginning in 1887. The S.M. Hewett Company constructed at least one bridge in Montana in 1893. Arthur worked primarily as a foreman for his uncle on Montana bridge projects beginning in 1892. By 1897, William had struck out on his own and formed the W.S. Hewett Bridge Company in Minneapolis. The company built bridges in Minnesota, the Dakotas and at least eight bridges in Montana between 1897 and 1906. The company, however, was not limited to the construction of bridges. Hewett also experimented with reinforced concrete and invented a pre-cast concrete culvert that could be assembled in sections.²³

Hewett and his cousin, Arthur, formed the Security Bridge Company in 1905 with headquarters in Minneapolis. The new company's first project was the construction of a single-span pin-connected Pratt through truss across the Stillwater River at Kern's Crossing (24ST215) in Stillwater County in 1907. By 1917, the company had constructed at least 44 truss bridges throughout central and eastern Montana. Most were simple pin-connected Pratt through structures or riveted Warren pony truss structures. In 1911, the company relocated its headquarters to Billings, Montana and reincorporated with Arthur as president of the firm and fellow Minnesotan William P. Roscoe as vice-president. The company also opened a branch office in Lewiston, Idaho. The company's Billings corporate office was located in the Stapleton Building on North 32nd Street in Billings. The Security Bridge Company also built waterworks, sewers, concrete irrigation ditch structures and other heavy construction work in Montana, Wyoming, Idaho, Oregon and Washington.²⁴

From 1911 until 1926, Arthur was president of the company. Even though the creation of the Montana Highway Commission's Bridge Department in 1915 ended the primary role of the bridge companies in bridge construction in Montana, the Security Bridge Company continued

to build bridges under the auspices of the Commission and the counties. It was one of the few bridge construction companies in Montana to survive the redirection the bridge-building industry took in the state after the creation of the Montana Highway Commission in 1913. Arthur closed the company in 1926 to pursue other interests in Billings. The company's successor, the William P. Roscoe Company, continued to build bridges in the state until his death in 1956.²⁵

Charles W. Voges

Born in Wisconsin in 1861, Charles Voges came to Montana in 1898 from South Dakota. After arriving in Montana, Voges worked for sheep ranches in the Musselshell and Boulder river valleys. In 1906, they acquired a ranch on the north side of the Yellowstone River adjacent to the Voges Bridge. In 1907, he acquired a substantial water appropriation from the Prather-Mayborn-Westfall Ditch approximately two miles east of his ranch. In addition to Charles, the Voges family in 1914 consisted of his wife, Grace, and an 18 year-old son named Arthur. Grace's brother, Bruce Gage, also resided at the ranch. Charles Voges purchased a 164 acre property on the north side of the Yellowstone River from Charles and Gertie Stuart for \$3,500 in November, 1906. As a condition of the sale, Voges agreed to assume a lien on the property from the Union Central Life Insurance Company. Charles was also part owner of the Voges & Guthrie Sheep Company with A.S. Guthrie. The ranch, which consisted of 357 acres in 1914, had grown to 1,173 acres by 1918. Charles employed five men at the ranch. All were recent emigrants to the United States from eastern Europe and the United Kingdom.²⁶

In May, 1920, Charles Voges donated the land for the construction of a school just north of the Voges Bridge. The Voges or Bridge School (24SW321) is the sole remaining one-room schoolhouse open in Sweetgrass County. The school became the basis of the School District #42 (Bridge) in Sweetgrass County. Charles Voges served as a trustee of the school district from about 1910 until the late 1920s. Voges died in Big Timber in September, 1958.²⁷

W. Dixon Ellis

New York millionaire and oil man W. Dixon Ellis had established a substantial cattle ranch north and southeast of the Voges Bridge by April, 1884. His partner, Ralph Briggs filed on a 160 acre homestead east of the future site of the bridge in October, 1889. Because there is no record of Briggs receiving the patent on the property, it seems likely he was bought out by Ellis. Throughout the 1880s, Briggs and Ellis consolidated their holdings on the Boulder River and on Duck, Lowell, Big Timber and Hole-in-Rock creeks on the bench lands north of the community of Big Timber and the Voges Bridge. Because they secured water appropriations on the above-named streams, Briggs and Ellis were likely growing hay for forage purposes which was consistent with other ranching operations in this region of Sweet Grass County. By 1900, Briggs had left the county. In 1915, the Briggs-Ellis Cattle Company consisted of 6,046 acres with an assessed value of \$65,000.²⁸

Although there had been sporadic talk about the construction of a bridge across the Yellowstone River between Big Timber and Springdale, Ellis' donation of \$5,000 to the county, along with a petition submitted to the county commissioners in October, 1913 and March, 1914 coerced the county to construct the much-needed bridge. The oil tycoon's donation, apparently, was for the inclusion of a stronger deck on the structure that would be capable of carrying a 20-ton tractor. When completed, the bridge connected the rancher's properties on the north and south sides of the river and shortened the distance between the Briggs-Ellis Company ranch and the Northern Pacific Railroad main line at the Carney station from thirteen miles to six miles. In 1922, the Briggs-Ellis company owned 10,526 acres north of the Voges

Bridge with an assessed value of \$157,716. It would appear that the completion of the bridge in 1914 along with the economic depression and ranch foreclosures in Montana between 1919 and 1921 worked to W. Dixon Ellis' advantage.²⁹

V. FOOTNOTES

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3. Michael Malone, Richard Roeder and William Lang, *Montana: A History of Two Centuries* (Seattle: University of Washington Press, 1991), 116-117; Dorothy Johnson, *The Bozeman Trail: The Perilous Trail to Montana's Gold*. (New York: McGraw-Hill Book Company, 1971), 25-33; Brown, *The Plainsmen of the Yellowstone*, 130-133.
4. Johnson, *The Bozeman Trail*, 27-28, 316-317; Burlingame, *The Montana Frontier*, 132-133; Brown, *The Plainsmen of the Yellowstone*, 16, 138, 182; General Land Office map: Township 1 One, Range 13 East, May 5, 1889. Montana Department of Natural Resources and Conservation, Helena.
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9. Cheney, *Names on the Face of Montana*, 23, 261; Water Resources Survey I, 5; Malone, Roeder and Lang, *Montana*, 237-238; Babcock, *Illustrated History of the Yellowstone Valley*, 191, 195.

10. By 1920, the district immediately north of the Voges Bridge included 96 people divided among 27 households. There were 23 agricultural operations in the district, of which nineteen were stock ranches; the remaining four were dry land farms at the extreme north end of the district. Of the 96 people in the district, seventy were native-born Americans. United States Census Records: Sweet Grass County, Montana, 1920; Joan L. Brownell, "Cultural Resource Inventory for the Big Timber - North Project [F 45-1(8)0], Sweet Grass County, Montana." Report prepared for the Montana Department of Transportation, 1989, 7; *Water Resources Survey I*, 25-26; Malone, Roeder and Lang, *Montana*, 236-241.

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12. *The Big Timber Pioneer*, December 9, 1913; *Ibid*, March 5, 1914; *Ibid*, March 12, 1914).

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14. *The Big Timber Pioneer*, October 30, 1913; *Ibid* March 26, 1914; *Ibid*, April 2, 1914; *Ibid*, April 9, 1914; Commissioners' Proceedings, April 7, 1914, 24.

15. *The Big Timber Pioneer*, April 9, 1914; *Ibid* May 21, 1914.

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20. Axline, *Ibid*, 32-33.

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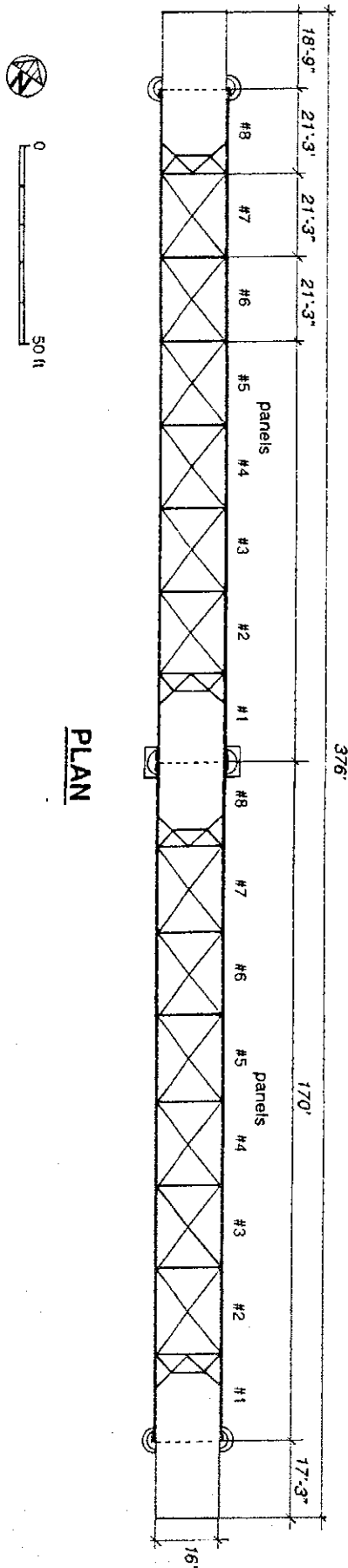
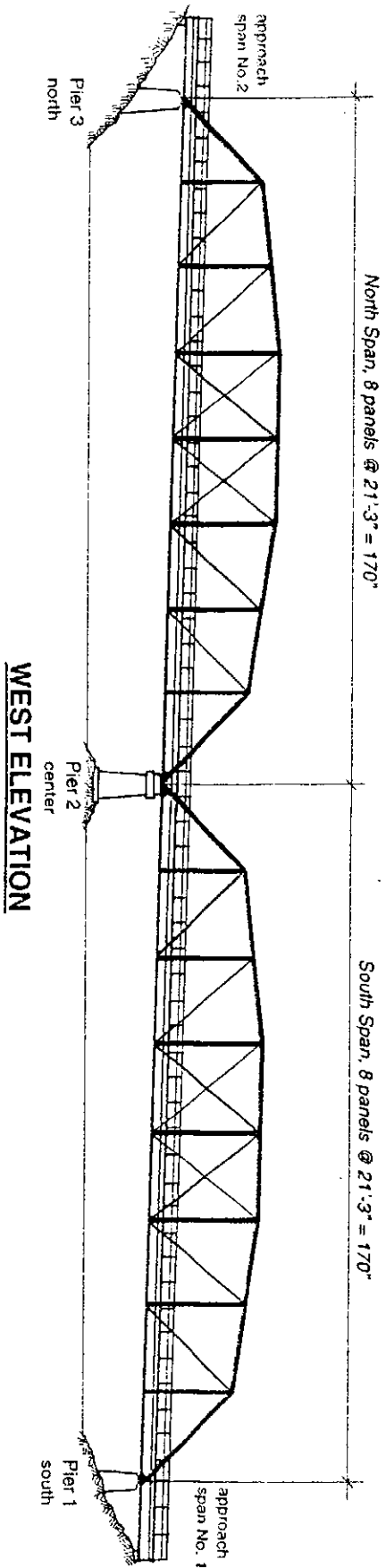
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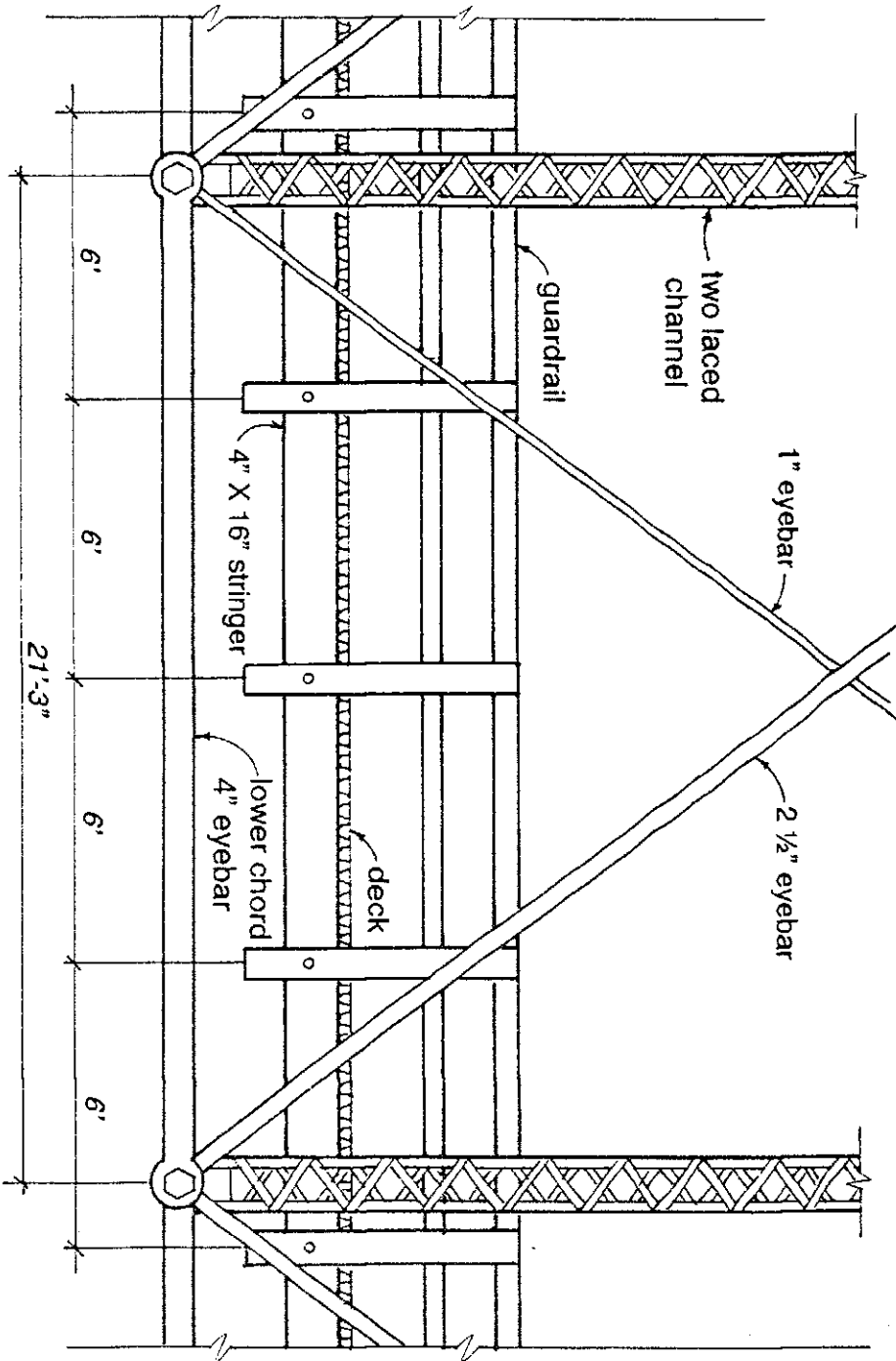
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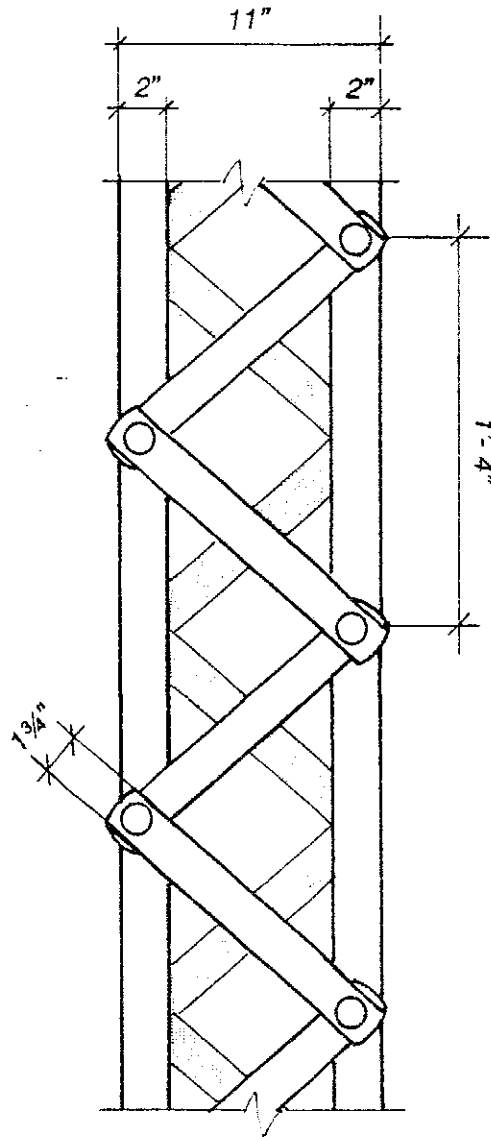
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PANEL # 5 - ELEVATION

scale: 1/4" = 1'-0"



Vertical Truss Member
(Two Laced Channel)

scale: $1\frac{1}{2}" = 1'-0"$